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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,500	03/10/2006	Mirko Milazar	2003P11268WOUS	4213
22116 7590 01/17/2008 SIEMENS CORPORATION INTELLECTUAL PROPERTY DEPARTMENT 170 WOOD AVENUE SOUTH ISELIN, NJ 08830				
EXAMINER SUNG, GERALD LUTHER				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/571,500

Applicant(s)

MILAZAR, MIRKO

Examiner

GERALD L. SUNG

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4156

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2006 is/are: a) ☒ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 3/10/2006
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because figure 3 and figure 4 appear to be duplicate drawings where the only difference appears to be a means for fastening the spring element. Elements 21 and 25 and 22 and 26 on figures 1, 3 and 4 have been used to designate the same element. Elements 34 and 35 in figures 1, 3 and 4 are objected to because they are inconsistent with the previously used labeling scheme. Elements on the upstream end were labeled "first" or "front" and elements on the downstream end were labeled "second" or "rear." Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because the specification fails to address figure 4 in the brief description of the drawings. Appropriate correction is required.
3. The disclosure is objected to because the specification discloses a term "bearing surface 32" on page 7 paragraph 31 which is not clearly set forth in the specification. Furthermore, it appears the term is inconsistent with its counterpart on the downstream side which is labeled as "annular supporting surface." Appropriate correction is required.
4. The disclosure is objected to because the specification indicates that "the spring element commoves in synchronism with the rear ring" page 4 paragraph 17. It appears the applicant intended to mean the spring element moves in conjunction with the rear ring. Appropriate correction is required.
5. The disclosure is objected to because the term "groove" is misspelled as "grove." Appropriate correction is required.

Claim Objections

6. Claims 12, 21, and 22 objected to because the term "groove" is misspelled as "grove". Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 12-20, the limitation "the first ring" in claim 12 line 14 and the limitation "the two rings" in claim 12 line 15 lacks sufficient antecedent basis.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 12-15 and 18-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Morgan et al. USPN 6,464,457 B1.
11. Regarding claims 12, 15, 18-20, and 21-22 referring to figures 1 and 4 below, Morgan et al. disclose a axisymmetrical gas turbine engine, with a rotationally mounted rotor (22), an axial compressor (16), a combustor (18), a turbine (not labeled), an annular casing (44) to carry the engine's core gas flow, where a front ring like portion (refer to figure 4) extending in the axial direction and a rear ring like portion (refer to figure 4) extending in the axial direction are mounted via a seal assembly (33). The seal assembly comprises of a spring element (56) to seal off an annular gap formed by the two pieces being joined together. The downstream end of the seal assembly is attached in a groove in the rear ring like structure and the upstream end attached to a groove in the front ring like structure. When joined together via a seal assembly (33), the two ring

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like structures form an annular gap extending in the direction of the engine's core gas flow.

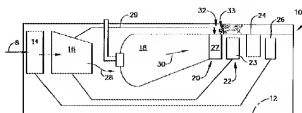


FIG. 1

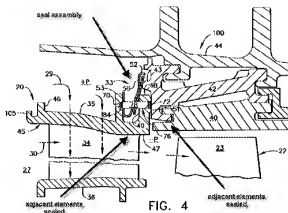


FIG. 4

12. Regarding claims 13-14, Morgan et al. disclose an inner portion of the casing assembly comprising support shrouds (42) that diverge conically in the direction of the flow. The front ring like structure comprises a structure resembling a radially inner collar and the rear ring like structure comprises a structure resembling a radially outer collar.

13. Regarding claims 18-20, 24, and 27, referring to figure 4 above, Morgan et al. disclose a seal assembly bearing surface is provided on the radially inner collar on the side opposite of the engine's core gas flow. The spring component of the seal assembly is of largely S-shaped cross section. Furthermore, the cooling medium exerts a higher

pressure on the outer diameter surface of the spring assembly than the inner pressure as indicated in figure 4 via +/- P.

14. Regarding claims 21-22, referring to figure 4, Morgan et al. disclose a seal assembly (33) having a first structure with a collar portion, a second structure with a collar portion adjacent to the first structure and partially overlapping so as to form an annular gap, where the second structure has a circumferential groove open to the annular gap. The spring element of the seal assembly is arranged to seal the annular gap from the engine's core gas flow such that the seal assembly is arranged to be secured within the circumferential groove and the opposite end in the contact with the upstream ring like structure portion. The circumferential groove is facing the annular gap.

15. Regarding claims 23 and 26, Morgan et al. disclose the use of tack welds to fixedly join the seal assembly into an aft rail (column 2 lines 6-12).

16. Regarding claim 25, Morgan et al. disclose a seal system in a gas turbine engine comprising a first ring like structure concentric to the gas turbine centerline, a second ring like structure adjacent and concentric to the annular surface of the first ring like structure with a recessed surface, and a seal assembly arranged such that one end is within the recessed surface of the second ring like structure where the spring component of the seal assembly "[is] used to provide positive contact at the sealing surface when the pressure loading across the seal is low" (column 2 lines 18-20).

17. Regarding claim 28, Morgan et al. disclose a seal assembly that "... can accommodate differential radial movement between the aft rail (48) and the hanger (42)" (column 8 lines 36-39). Referring to figure 4 above, it can be seen that the

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assembly structure is capable of retaining proper sealing in the event of axial movement between the first and second ring like structures.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan et al. USPN 6,464,457 B1.

21. Regarding claim 16, in so far as definite, Morgan et al. disclose all elements except a circumferential groove with a radial thickness which is less than twice the material thickness of the spring seal; however, it would have been obvious to one of ordinary skill in the art at the time of the invention, since Morgan et al. disclose the "leaf spring (56) is a generally partially folded member with a U-configuration for being trapped and placed in compression between the tab (53) and the leaf seal (52)" (column 8 lines 5-10), that the thickness of the seal in relation to the circumferential

groove is merely a design choice where the optimization of the seal assembly is dependent on the thickness of the seal as well as the width of the groove. Therefore, the limitations of claim 16 do not lend itself to be patentably distinguishable over the prior art.

22. Regarding claim 17, Morgan et al. disclose a first end of the spring element connected to a groove via tack welds.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERALD L. SUNG whose telephone number is (571)270-3765. The examiner can normally be reached on M-F 9am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Isabella can be reached on (571) 272-4749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/DMITRY SUHOL/

Primary Examiner, Art Unit 3725

Gerald Sung
Patent Examiner
GS
1/9/2007